



National Environmental
Research Program

LANDSCAPES &
POLICY *hub*

The Tasmanian Midlands:

report of a study tour of regional biodiversity issues

11-12 October 2011



Louise Gilfedder at Tunbridge Township Lagoon Nature Reserve

Tour report compiled by
Ted Lefroy

Landscapes and Policy Hub

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NOTES ON THE TASMANIAN MIDLANDS STUDY TOUR

11/12 October 2011

The Tasmanian Midlands Study Tour involved 28 researchers and steering committee members from the Landscapes and Policy Research Hub. The tour provided an opportunity for researchers to gain a first hand and local perspective of biodiversity conservation issues in the Tasmanian Midlands Study Area. For details of the research hub and its partners see end papers.

Part A: Description of each site visited and their relevance to the hub's research (p 1).

Part B: Summary of issues raised by participants at the end of the tour (p 13).

Part C: A timeline of events relevant to nature conservation in the Tasmanian Midlands (p 16)

Part D: Useful references (p 19)

A. SITES VISITED AND THEIR RELEVANCE TO THE LANDSCAPES AND POLICY HUB

1. Coal River Valley, Allison Woolley DPIWE

On our way up the Coal Valley, Allison Woolley described the 'Strategic Assessment' process carried out by the Australian and Tasmanian Government's under the Environmental Protection and Biodiversity Conservation Act (EPBC), a process triggered by the likely impact of proposed irrigation development in the Midlands, particularly on the listed Lowland Native Grasslands community (Australian Government 2011). The four parties involved in that process were the Australian Government (the regulator), the Tasmanian Government (the proponent), Tasmanian Irrigation (government business enterprise established to develop the schemes and sell water to irrigators), and the farming community (land managers and water users). The Coal Valley was the site of a publicly funded irrigation scheme based on the construction of the Craigmare dam in 1986. The Coal Valley experience was cited in the 2009 report by Prof. Jonathon West "An Innovation Strategy for Tasmania" as a useful precedent for future irrigation schemes (West 2009). That experience, common to other irrigation schemes (for example, Burdekin, Ord) indicated that there are pre-requisites for commercial irrigation development in addition to water access including agronomic expertise, access to capital and a skilled work force. The West report was commissioned following announcement of the Tasmanian Govt's 'Foodbowl' policy (Brand Tasmania 2009).



Significance for Research Hub:

- 'Strategic Assessment' process as a precursor to bioregional planning under the EPBC Act.
- The challenges of developing landscape-level protocols to monitor the impacts on biodiversity of land use change and intensification, including accounting for direct and indirect effects.



- The Coal Valley as a historical precedent for irrigation development, including the social, economic and institutional pre-requisites for successful irrigation development, the patterns and timing of development and environmental impacts.

2. The Northern Midlands Bioregion

At Spring Hill, we crossed the watershed between the Derwent and Tamar river basins and entered the Northern Midlands Bioregion. Geographically the bioregion is defined by the Tamar Graben, a trough or rift valley caused by two parallel faults represented by the Eastern and Western Tiers. The trough runs roughly north-west to south-east between Oatlands and the Cataract Gorge where the South Esk River enters the Tamar estuary. The southern end of the bioregion is approximately 300 m higher in elevation than the northern end, with a higher proportion of thin, rocky and otherwise less well-developed soils. The more fertile well-structured soils in the basin are concentrated at the northern end around Cressy, Longford and Carrick where there has historically been a higher proportion of land under cultivation.



Significance for Research Hub:

- This bioregion has been identified as a biodiversity hotspot by the Australian Government
- It has the smallest proportion of total area (8%) and remaining native vegetation (20%) in reserve of Tasmania's nine bioregions.

3. Tunbridge Township Lagoon Nature Reserve; Louise Gilfedder DPIPWE

Thirty five percent of the bioregion remains under native vegetation, with only 8% of that found in reserves. There are some 180 plants, 21 animals and 2 plant communities in the bioregion currently listed under the EPBC Act. Ninety six percent of the bioregion is under private ownership. Less than 10% of the original extent of the listed Lowland Native Grassland communities remain, and this small site (15 ha) that at one time served as the town tip, is the





only nature reserve in the state devoted to this community. Its significance was recognised as a result of vegetation surveys carried out by Prof. Jamie Kirkpatrick and Rod Fensham during the 1980s (Fensham and Kirkpatrick 1989; Fensham 1989). The lagoon is saline (approximately twice the salinity of seawater, or 60,000 ppm total soluble salts, R Knight pers comm) and is one of many depressions in the vicinity that intersect the locally shallow perched water table. An adjacent lagoon served as a source of salt for the early colony (see Lycett painting on back cover). Several attempts have been made to add to this reserve through purchases of adjacent grassland without success.



Significance for Research Hub:

- Acquisition has not been a sufficient strategy for biodiversity conservation of these grassland communities, hence the evolution of a series of different incentive schemes (see point 11 below).
- Ground water and soil salinity has been identified as an issue in the Midlands, as assessed during the National Land and Water Resources Audit (Bastick & Walker 2000) and subsequently through the Australian Government's National Action Plan for Salinity and Water Quality (Bastick et al 2007).

4. 'Annandale', Tunbridge; Richard and Emily Gardiner



The wool price crash in the early 1990s led to a shift to a more intensive cropping program, with 600 ha of this 2,600 ha property currently set up for irrigation using three towable centre pivot irrigators. Up to 200 ha of poppies are grown each year on a three-year rotation. The area under irrigation is limited by water availability. While average annual rainfall is 465 mm, this is highly variable and was as low as 200 mm



per year in some years during the 2000-2010 drought. Irrigation water is currently sourced from a dam fed by winter flow from two streams, which ranges from 200 to 1000 ML at full capacity. With the introduction of irrigation, farm turnover increased by a factor of 3.5 from \$500k pa to \$1.8m pa. Some 30% of the farm is under native vegetation, predominantly grassy woodland, which has been set aside as conservation reserves through a range of management agreements with the state government.



Significance for Research Hub:

- Intensive agriculture and conservation areas are being managed side by side on Annandale for very different outcomes, raising the following questions;
 - How could fire and other disturbance regimes be used to maintain plant and animal species richness and diversity as part of a diverse agricultural mosaic?
 - How could the negative off-site impacts of water, nutrients and chemicals from irrigation areas and fire from conservation areas be managed in an agricultural mosaic?
 - How might current regulations on the control of native and introduced animals be changed to better serve the management of conservation reserves on private land?
- Richard Gardiner is the regional representative for the Tunbridge and Ross regions in the Arthur's Pipeline irrigation scheme.

5. 'Beaufront', Ross; Julian and Annabel von Bibra

'Beaufront' covers 12,500 ha from the Macquarie River frontage to 'run country' (grassy eucalypt woodland) in the foothills of the Eastern Tiers. It carries 30,000 sheep and 300 cattle. The run country, which makes up 20% of the property, is grazed primarily by sheep off-shears and at





lambling, amounting to about 5 weeks total grazing for any one paddock in a year. The von Bibras and two of their neighbours (Simon and Penny Foster, and John and Fiona Cameron) have established the Midlands Rangelands Group, with one of its aims being to enable landholders to derive income from land managed primarily for its conservation values. This is based on their experience that managing for conservation involves an opportunity cost (i.e. income forgone from more intensive grazing) which is beyond the duty of care of a private landholder. This represents a departure from existing conservation schemes which to date have been established and managed by government. In response to the Midlands Rangeland Group, the Midlands Conservation Fund has been jointly established by two conservation non-government organisations (NGOs), the Tasmanian Land Conservancy and Bush Heritage Australia. Recent regeneration of eucalypts in the run country, seen for the first time for 20 years, raises questions about the combination of environmental conditions and disturbance events that lead to recruitment, and how might this be encouraged in the future.



Significance for Research Hub:

- The precedent of this new form of perpetual conservation incentive and the observations that led to its establishment could be used to inform modelling of the likely impact and uptake of a range of conservation instruments.
- Observations from the 'Beaufront' run country raise questions about how mosaic burning of grassy woodlands could be used to maintain and improve natural values, including plant and animal species richness and diversity.
- Julian von Bibra is the regional representative for the Macquarie district in the Arthur's Pipeline irrigation scheme.





6. Launceston; James McKee CEO NRM North



In his after dinner speech, James made three key points; First that engagement was the key to achieving conservation objectives at landscape scale, not just as an activity but as a way of solving complex problems and finding new ways to relate to one another and grow as a community. Second that in an agricultural landscape, the farm scale was the most appropriate scale at which to integrate information and effort. NRM North has centred a lot of its efforts around Property Management Planning, as this is seen as a means of bringing together local and expert knowledge on the condition of soil, water, carbon, biodiversity and human capacity and achieving multiple objectives with greatest efficiency of effort. Third that true biodiversity conservation will not come from a bureaucratic imperative alone, but springs from the desire of people to make their landscapes more functional, useful and beautiful.

Significance for Research Hub:

- The NRM regions are the entities that are closest to our hub in the sense that they have a brief to take a strategic view of resource conservation at regional scale, and as such have done a lot of thinking about social and economic consequences of conservation, achieving multiple benefits from intervention, and understanding community attitudes and motivations. This makes NRM North a significant partner in our research.
- There is a great deal of experience and information within the NRM regions that is directly relevant to the hub's research.

7. Wealth from Water; Peter Voller DPIWWE

- The Tasmanian Government's Wealth from Water Pilot Program aims to assist farmers and potential investors to develop their irrigation businesses and help make the transition to growing the high-value crops best suited to their area. The pilot is pioneering new ways of providing soil, climate and enterprise suitability information, as well as market and business planning support. The program commenced in late 2010. \$2.15 million is being invested in a two-year pilot to prove the concept. Two case studies are now underway: one is across the 45,000-hectare Meander Valley Irrigation Area, and the other covers a 25,000 hectare part of the new Midlands Irrigation Scheme around Tunbridge and York Plains. The Program will classify land according to its suitability for various agricultural enterprises. It will provide landowners and potential investors with comprehensive soil, climate, crop and enterprise information. This will be complemented by farm business planning tools, the latest market information and market opportunity workshops. The





information provided will aim to help reduce potential production, financial and environmental risks from irrigation development.

Significance for Research Hub:

- The information generated by this project will be a useful ingredient in the development of scenarios of land use and land management change.
- The integrated soil, climate, crop and enterprise information will make an interesting comparison with the ecosystem services information being produced by the Bioregional Futures project.

8. 'Nosswick', Blackwood Creek; Andrew and Edwina Colvin

'Nosswick' is an example of a very productive 'synthetic woodland' emerging out of a highly modified landscape. Strategic tree planting is gradually converting this heavily cleared grazing property into a network of connected forest patches that encompass a mosaic of intensively farmed areas of irrigated cropping. The principle behind Andrew's vision is that there will be multiple benefits from surrounding his intensively farmed areas with a network of trees. Their multiple roles are to soak up excess water and nutrients from the shallow duplex soils that are prone to water logging, provide shelter for crops against damaging winds, provide habitat for birds and insects including beneficial species that play a role in pest control, provide a source of carbon credits, improve the aesthetics of his farm and contribute to the farms energy budget. The 'nodes' in this forest net are the corners of paddocks containing a pivot irrigator, which amounts to 16% of the area of a square. These are being progressively established to mixed plantings of *Eucalyptus nitens* and *Acacia melanoxylon* and connected to the few remnants of the original vegetation, including the last patch of wet *E. viminalis* forest on valley floor in the northern Midlands which borders Blackwood Creek and provides a link from 'Nosswick' to the unbroken forest of the Western Tiers.



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Significance for Research Hub:

- 'Nosswick' is an example of commercially driven restoration ecology in a 'relictual' landscape (*sensu* MacIntyre & Hobbs 1999). This is very relevant for much of our study area and could be used as a basis for scenarios of land use change under the influence of different incentive schemes and planning instruments.
- 'Nosswick' also presents an opportunity to test hypotheses concerning the role of trees in a cropping landscapes including competition and opportunity cost versus benefits from water and nutrient management, shelter effects and pest control.



- The fact that Andrew and Edwina's neighbours have adopted very different strategies to farming in this landscape raises questions about the importance of personal motivations and worldview as precursors to land use and land management change as well as the economic capacity of the farm business and the ecological condition of that particular patch of landscape.
- At 11:30 am on 12 October, as we stood on a hill at 'Nosswick' looking over Andrew's 'forest net' reaching out towards the Western Tiers, news came through that the Clean Energy legislation had passed through the lower house of the Australian Parliament, heralding the beginning of a national carbon market.



9. Brumby's Creek, Cressy; Michael Bidwell, Hydro Tasmania

Michael is the Land Management Officer for Hydro Tasmania, a Government Business Enterprise (GBE) that manages 121,000 ha of land and is the country's largest freshwater manager. The direct relevance to the Tasmanian Midlands is that Hydro Tasmania manages the riparian zone of Brumby's Creek from the tailrace out of the Great Lakes at Poatina to the Macquarie River. The indirect relevance is that it manages the water release from the Great Lakes, and soon Arthurs Lake with the development of the Midlands irrigation Scheme, which has significant impacts on the prospects for agriculture and biodiversity in the region. Of particular relevance is the projected decline in rainfall in the catchments of the lakes over the next half century (see Climate Futures for Tasmania 2010). Hydro Tasmania also has experience in restoration of some 10,000 ha degraded riparian habitat, and



A Summary of the NERP Landscapes and Policy Research Hub Tasmanian Midlands Study Area Tour



through remediation and proposed carbon farming ventures is set to become a major player in the emerging carbon market.

Significance for Research Hub:

- There are numerous landholders in the Midlands - public, private, NGOs and GBEs – who are directly involved in biodiversity conservation and emerging environmental markets and whose activities have an impact on biodiversity conservation. Our analyses and scenarios need to consider all types of land and water owners and managers and their likely future influence on land, water and biodiversity.

10. 'Stewarton', Cressy; James Walch

James described himself as an agricultural activist and was one of those who campaigned for the current Tasmanian Midlands irrigation development schemes. He holds positions on a number of influential bodies including the Tasmanian Climate Action Council, the Australian Landcare Council, the Tasmanian Farmers and Graziers' Climate Change Taskforce and Environment Policy Council and the National Farmers' Federation Federal Emissions Trading Taskforce. He also described himself as having diversified into potatoes, poppies and lucerne to support his habit of growing wool. 'Stewarton' is 740 ha with 180 ha arable (100 intensive crop rotation and 80 in lucerne-cereal rotation), 250 ha in permanent improved pasture, 250 ha in native or semi-improved pasture and 60 ha of remnant and planted tree species. It has been farmed since 1822, with the three locations originally taken up on Wild's Plain now merged into one holding. It



has approximately three km of frontage along the Macquarie River and is renowned for its trout fishing, partly due to the prevalence of a mayfly, the red spinner. 'Stewarton' incurred the wrath of the fly fishing fraternity when flood plains were cultivated in the 1970s with the loss of mayfly habitat. Much of that frontage has since undergone restoration. The 'Stewarton' landscape was the most modified of the four farms we visited, and James explained his approach to land management and conservation was to use whatever plants would do the job without preference for their origin, native or exotic. James sees managing climate variability as a far more significant challenge than adapting to climate change, and that meeting the energy demands of farming as the next big challenge. Modelled carbon balance carried out by NRM North suggested net sequestration of 8,000 tons per annum.



Significance for Research Hub:

- In transforming highly modified landscapes to maintain and improve ecosystem services, can we afford to be precious about what plants are used for restoration and where they come from, as long as they do no harm? (for example, see Davis 2011). In other words, should we abandon the 'olive green' Australia policy, the botanical equivalent of the white Australia policy, for botanical multi-culturalism, given the size of the challenge, the degree of modification that has already occurred and the value of some exotic species?
- Trapping approximately one feral cat a week for two years at 'Stewarton' appears to be associated with increased quail numbers. This anecdotal evidence for a response to predator control warrants further examination and presents an opportunity for field research that could contribute to biodiversity conservation strategies.



11. Tom Gibson Nature Reserve, Epping Forest, Louise Gilfedder DPIWE



In 1991, the Tasmanian government purchased 665 ha of dry forest and woodland at Epping Forest in the centre of the Northern Midlands bioregion from the Gibson family. A further 355 ha was added through the Regional Forest Agreement in 2004 and the area became known as the Tom Gibson Nature Reserve In honour of the previous landowner who wished it remained intact for conservation. Epping Forest, originally 21,000 ha in extent, had been reduced to 3,000 ha by 1997. The abundance of a threatened annual daisy (*Triptilodiscus pygmaeus*) in grazed sites demonstrates the importance of disturbance in the ecology of many grassland and woodland plant species as it was absent where vegetation was



ungrazed and “rank.” Nine grass and herb species were only reserved at Epping Forest until private land in the district was protected under conservation agreements. In addition to orchids, sedges and lilies, the reserve has conservation significance as habitat for the Tasmanian Bettong. A management plan drawn up in 1991 (Fensham 1991)



recognised the importance of disturbance (fire and grazing) in maintaining diversity and species richness, and stipulated grazing by sheep as an analogue of the previous disturbance regimes to which the understorey species had become adapted. Subsequent exclusion experiments have compared the impacts of grazing by sheep and native herbivores (Kirkpatrick & Bridle 2006). At this site, Louise Gilfedder outlined the Department of Primary Industries Parks Water and Environment’s ‘Private Land Conservation Program’. This program is an umbrella for a number of programs that span a decade and

pioneered the use of a range of instruments that were both targeted at different vegetation types, and tailored to the needs and interests of landholders. The PLCP commenced on 1 July 2006, and it provided a more coordinated means to communicate services and agreement types to particular landowners. It has been the one-stop shop for the various private land programs in Tasmania, and also includes Land for Wildlife and Gardens for Wildlife.

- The Protected Areas on Private Land program (PAPL) is a covenanting program without any financial incentives and the first covenanting program to operate in Tasmania.
- The Private Forest Reserve Program arose out of the Regional Forest Agreement in 1997. While developing the RFA it became clear that reservation targets for about half of the forest types could be adequately met on Crown Land, including National Parks and other formal Reserves, with the rest to be secured on private land with financial incentive payments tied to covenants and management agreements for the protection of threatened forest communities
- The Non-Forest Vegetation Program (NFVP) (2004-2008) arose from the commitment made by both the Tasmanian and Australian Governments in the Bilateral Agreement on the Natural Heritage Trust (2003) to support the protection of rare, vulnerable and endangered non-forest vegetation. It was an incentive based program and it developed new instruments such as fixed-term instruments and outcomes-based stewardship agreements. The Tasmanian Farmers & Graziers Association was a service provider for the NFVP.





- The Midlands Biodiversity Hotspot Program (MBHP, 2004-2007) provided Incentives for improved management of priority natural habitat in the Tasmanian Midlands. (\$900,000 funding over three years) a tender program managed by the Tasmanian Land Conservancy
- The Forest Conservation Fund (FCF) (2007-09) was a commonwealth-funded program that secured 40,000 ha of forest under management agreements from a total investment of \$130m, representing full capital value of the land. It was a tender-based project delivered by a consortium managed by KPMG (Tasmania) that aimed to protect old growth and under-reserved forest communities. Mole Creek Karst Forest Programme (2006-2008) was set up to protect sensitive karst areas that have forest above them in the Mole Creek area. It was delivered by the Tasmanian Land Conservancy.

Significance for Research Hub:

- The experience of the Private Land Conservation Program has some significant lessons for instruments that might be tested in through modelling as part of this project;
- The level of incentive required to achieve conservation management agreements over private land has had to increase with each subsequent program, suggesting a rising threshold of reward required to achieve conservation above some basic level of duty of care. There is a view that covenanting may have reached its maximum level of adoption, and that the level of incentive is rising to approximate the full opportunity cost of land.
- Factors that might be influencing the rising level of incentive or compensation required to achieve conservation on private land include:
 - 1) reaching the limit of those landholders with a high duty of care;
 - 2) crowding out those willing to enter into voluntary conservation agreements with incentive schemes and market based instruments;
 - 3) increased pressure to achieve greater productivity through land use change intensification since the wool price crash;
 - 4) increased pressure to achieve greater productivity in response to continued declining terms of trade in agriculture generally (costs increasing at a greater rate than prices received).





B. REFLECTIONS OF TOUR PARTICIPANTS

Over two days, the 20 researchers and six members of the steering committee visited two nature reserves, toured four farming properties with the owners, and heard from six people from four different organisations with a range of responsibilities or interests in biodiversity conservation (Department of Primary Industries Parks Water and Environment, Tasmanian Institute for Agricultural Research, NRM North and Hydro Tasmania). As a result, the group gained



an appreciation of the physical environment and broad patterns of land use and an introduction to its history. We also became aware of the challenges of nature conservation in what is a highly modified landscape, and were introduced to a diverse range of views on biodiversity from the region's residents. We also became aware of the extent to which the region's future is subject to big external drivers including commodity markets, government policy, climate variability and climate change.

Biodiversity as a public and private good: We need to acknowledge that biodiversity is seen as both a private and public good. Two of the big drivers of this region when viewed as a social-ecological system - the shift from wool production to intensified cropping, and residents' sense of place - involve both private and public good aspects of biodiversity.



Worldviews: We have seen the different ways that people think about



biodiversity conservation, reflecting their different worldviews. Perhaps a useful way to reflect this in our research is to use

the approach the IPCC has used in its assessments of climate change. That is, to develop a series of scenarios, through a combination of several climate change scenarios and several scenarios describing different development pathways, such as top down regulation, markets based solutions, and voluntary agreements.

Governance and capacity: We have seen evidence over the last two days that new forms of resource governance much talked about in the literature are beginning to become real. However, the capacity of land managers to respond to new markets and incentives that have been designed to improve prospects for biodiversity, ecosystem services and their social and economic welfare would appear depend on several factors – the personal views and interests of landholders in changing land use or land management practices; their economic capacity to do so; the adoptability and complexity of the



technology involved (e.g. Pannell et al 2006) ; and the ecological condition of the landscape and likelihood that it could be 'pushed' to some alternative state.

More than profit: Every landholder we have spoken to has emphasised the bottom line, that they



are in business and they have to make a profit. However, they have also alluded to a more complex preference set than simply profit maximisation that includes the condition of the bush on their farms, their attachment to place and intergenerational equity.

Where is the landscape ecology? We have had a lot of conversations about the sort of management required to manage patches of woodland or grassland or crop but where is the landscape ecology? How are we to put all this together and look at the large scale, aggregate implications of 'best management practice' in all these patches, and what sort of aggregate impacts are we trying to achieve?

Innovators: All the landholders we visited would be classed as innovators, or at least early adopters (Rogers 1983; Wejnert 2002). Achieving landscape scale change in a highly modified landscape requires adoption by a significant majority if, for instance, thresholds of perennial or woody vegetation cover is required to restore habitat and ecosystem services. This raises the question whether the examples we have seen over the last two days are relevant to the majority of landholders, and the extent to which our scenarios should be based on current 'best practice'.

Bottom line first: In some other regions of Australia, success has been achieved in improving the level of natural resource management by negotiating industry wide practice change that improves profitability, with biodiversity benefits achieved as conditions of premium commodity prices or other commercial incentives.

Drivers of change: It appears that human induced changes in land use and land management practices are likely to have a far greater impact on biodiversity in the short to medium term than climate change, which emphasises the interdependencies between the social and biophysical projects within the hub. This means that those of us modelling ecosystem responses to different drivers are dependent on the social, economic and institutional researchers to describe the range of drivers we should be including in our studies. In short, we need to agree on a common set of scenarios.

A challenging environment in an and uncertain world: The stark reality of the Northern Midlands is



that in terms of biodiversity conservation, it is a highly modified landscape closely linked to global markets at the mercy of a highly uncertain world. One possible future is to have lower expectations about what is possible. And maybe we need to look well outside the usual discourse on biodiversity and invest in completely new ideas. The danger of applying the same thinking is failing to meet expectations, or maybe even entering a state equivalent to the Stockholm syndrome where the 'hostages' come to accept their situation and defend their 'captors'.



Understanding each other: With so many different disciplines working closely together, and dependant on each other's research outputs, we need to be careful we understand each other and are using a common language. We need a glossary of terms to ensure that communication is not made any more difficult that it needs to be.

Local government: Of all the different groups involved in planning and management, there is one group we have not met or heard from at all on this trip—local government. We need to engage with local government authorities in both of our study areas from the outset of the research.

Indigenous owners: Another group we have not met or heard from are the traditional owners. Have attempts been made to engage them? Most projects of this sort would regard this as an important aspect of their engagement planning.

Making sense of multiple actors, values and interests: In thinking about this region as a social-ecological system, in developing our scenarios, and in considering responses to different policies and incentives, it might help to think of the many actors and values at play by viewing the region as a series of nested scales of activity with different actors and values tending to dominate different scales (Figure 1). It may also help to look at previous attempts at categorised worldviews into broad types (e.g. top down, egalitarian, individualist and fatalist, see Thompson 1996).

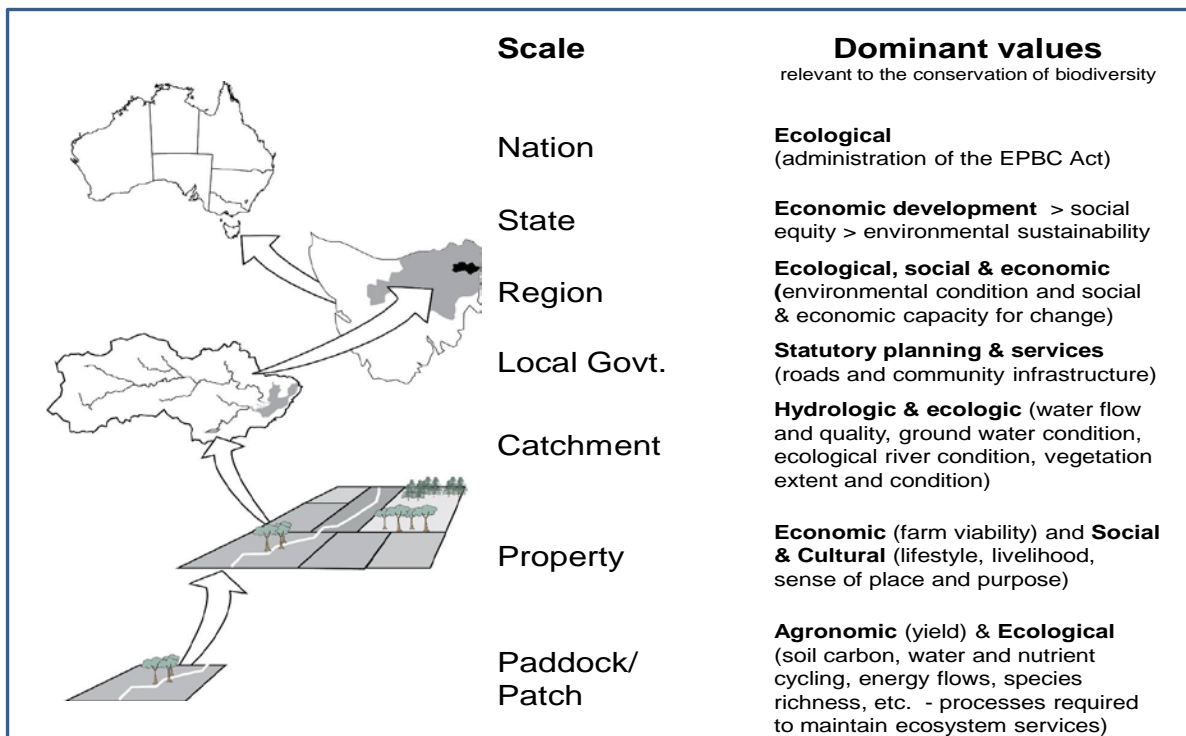


Figure 1 A schematic representation of the different scales of management and intervention relevant to the conservation of biodiversity in an agricultural region indicating the different values that tend to dominate at each scale (after Lowrance et al 1986).



C. TIMELINE OF SIGNIFICANT EVENTS RELEVANT TO BIODIVERSITY CONSERVATION IN THE MIDLANDS

- 1803 First European settlement commenced with the landing of Lt. Bowen at Risdon Cove in the Derwent Estuary on 7 September.
- 1820 20,000 ha of land reported to be established to ryegrass (*Lolium perenne*) in the Longford district for stock grazing.
- 1820 Merino sheep arrive from John Macarthur's stud at Camden, NSW.
- 1821 Governor Lachlan Macquarie chooses sites for the towns of Perth, Campbell Town, Ross and Oatlands in the Midlands on his second visit from Sydney.
- 1824 The work of convict artists Joseph Lycett's published in 'Views of Australia' in London to encourage immigration (Fensham 1989).
- 1825 Van Diemen's Land becomes colony independent of NSW on 3 December with appointed Executive Council, its own judicial establishment, and Legislative Council.
- 1825 Most of the grassy lowlands between Hobart and Launceston occupied by the new settlers (Fensham, 1989).
- 1830 Administration launches the "Black Line" military campaign across most of the colony to round up Aborigines; in seven weeks, two are shot and two are captured.
- 1832 George Augustus Robinson, who was appointed 'Protector' of aborigines in 1829, arrives in Hobart with aborigines from Oyster Bay and Big River tribes, believed to be the last to be removed from European-settled areas. Wybalenna on Flinders Island chosen for Aboriginal resettlement site.
- 1834 Stagecoaches begin weekly Hobart-Launceston services.
- 1835 John Glover paints 'My Harvest Home' on his farm 'Pattendale' in the Nile Valley south east of Launceston and sends 35 paintings to an exhibition in London.
- 1835 Nearly all remaining Tasmanian Aborigines surrender to George Augustus Robinson and are moved to Flinders Island.
- 1837 Lieutenant Governor Sir John Franklin founds Tasmanian Society for the Study of Natural Science. Its Journal, the Tasmanian Journal of Natural Science, was the first Australian scientific journal, commencing publication in 1842. In 1844, the society became the Royal Society of Tasmania, its first branch outside Britain.
- 1840 Economic depression starts, continuing until 1845.
- 1846 Tasmania becomes first Australian colony to enact legislation to protect native animals.
- 1851 Black Thursday bushfires in February.
- 1856 Tasmanian becomes the official name of the colony on 1 January.
- 1888 Tasmanian Legislative Council passes legislation to place a bounty of £1 per head on the Tasmanian Tiger (*Thylacinus cynocephalus*), largely influenced by its reputation for damaging sheep flocks in the Tasmanian Midlands (see transcript of Council debate in appendix to Owen 2003). The bounty lasted until 1909, by which time 2063 claims had been received.
- 1936 The last known living Tasmanian Tiger (*Thylacinus cynocephalus*) dies in the Beaumauris Zoo, Hobart.



- 1954 Wool price peaks at 'a pound a pound' (£1/lb) during the Korean war.
(dates of Tasmanian environmental legislation)
- 1972 Cressy-Longford irrigation scheme established through a private cooperative (GHD 1967).
- 1985 Farm Water Development Act 1985.
- 1985 Rod Fensham constructs the first detailed map of pre-European vegetation in the Tasmanian Midlands as his honours thesis under the supervision of Prof. Jamie Kirkpatrick. (Fensham 1989)
- 1986 South East Irrigation Water District commences operation with the completion of the Craigmare dam on the Coal River.
- 1989 Wool price crash, brought on by the failure of the floor price scheme and associated wool stockpile established to even out fluctuations in the prices received by growers (see Massey 2011 for a full analysis).
- 1992 Australia signs the Convention on Biological Diversity at the UN conference in Rio de Janeiro.
- 1998 Devil Facial Tumour Disease first reported in the Tasmanian Devil (*Sarcophilus harrisii*).
- 1999 *Environment Protection and Biodiversity Conservation* (EPBC) Act passed by the Australian Parliament.
- 2002 *Nature Conservation Act*
- 2003 Bilateral Agreement on the Natural Heritage Trust to support the protection of rare, vulnerable and endangered non-forest vegetation communities from clearance and conversion on all tenures.
- 2005 Tasmanian Community Forest Agreement was signed between the Australian and Tasmanian governments to enhance protection of Tasmania's forest environment under a supplementary Regional Forest Agreement.
- 2006 Jamie Kirkpatrick and Kerry Bridle publish "*People, Sheep and Nature Conservation*" (Kirkpatrick and Bridle 2006), an edited volume on the history and ecology of grazing management in the Midlands. They conclude that the level of disturbance associated with occasional, appropriately timed grazing was better for the biodiversity of grassland and grassy woodland plant species than either set stocking or 'locking up'.
- 2006 Maintaining Australia's Biodiversity Hotspots Programme (\$21 million) launched with non-government conservation organisations delivering stewardship payments and voluntary property acquisitions.
- 2008 Tasmanian Lowland Native Grassland Communities listed as a Matter of National Environmental Significance under the EPBC Act by the Federal Minister for the Environment.
- 2008 Tasmanian Government announces the \$80 million Water Infrastructure Fund in the 2008/09 budget to advance sustainable water infrastructure development.
- 2009 Hawke Review of the EPBC Act 1999 reports on suggested revisions of the act, including management of biodiversity at landscape and regional scale, and the introduction of Regional Environmental Planning.



- 2009 “Foodbowl” policy announced by the Premier in the State of the State address to parliament in response to continuing drought in the Murray-Darling Basin. To involve an investment of \$400 million in irrigation infrastructure delivering up to 250,000 megalitres of water a year to irrigate over 250,000 extra hectares of land and deliver an extra \$200 million in produce [annually] at the farm gate (March, Brand Tasmania 2009).
- 2009 Release of the “*Innovation Strategy for Tasmania*” by Prof. Jonathon West, commissioned by the Tasmanian Government. It suggested potential for an additional \$4billion/year increase in the gross value of dairy, beef, high value horticulture and wine production through irrigation (October).
- 2009 The Tasmanian Devil (*Sarcophilus harrissii*) listed as a Matter of National Environmental Significance under the EPBC Act.
- 2010 Australian and Tasmanian Governments enter into a ‘Strategic Assessment’ of the Midlands Water Scheme under the EPBC Act given the likelihood that Matters of National Environmental Significance under the Act, particularly the Tasmanian Lowland Native Grassland Communities, would be impacted (February).
- 2010 Federal Minister for the Environment announces the National Environmental Research Program (NERP), a four-year competitive public good research program with a theme of biodiversity conservation (April).
- 2010 ‘Wealth from Water’ project initiated by the Tasmanian Government to identify areas of suitable soils and potential crops for the proposed new irrigation areas.
- 2011 The Minister for Environment endorses the Strategic Assessment program report (April) and approves the construction phase of one of the two Midlands Water Schemes (May).
- 2011 The Minister for Environment releases the Australian Government’s response to the Hawke review of the EPBC Act, including adoption of Regional Environmental Planning and identification of ecosystems of national significance (June).





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Report compiled by:

Ted Lefroy

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*With plenty of
shoulder and
grunt from the
team!*



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Australian Government

Department of Sustainability, Environment,
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Salt Pan Plain, Van Diemens Land
Joseph Lycett, 1824
(Southern Midlands)



My Harvest Home
John Glover, 1835
(Northern Midlands)

